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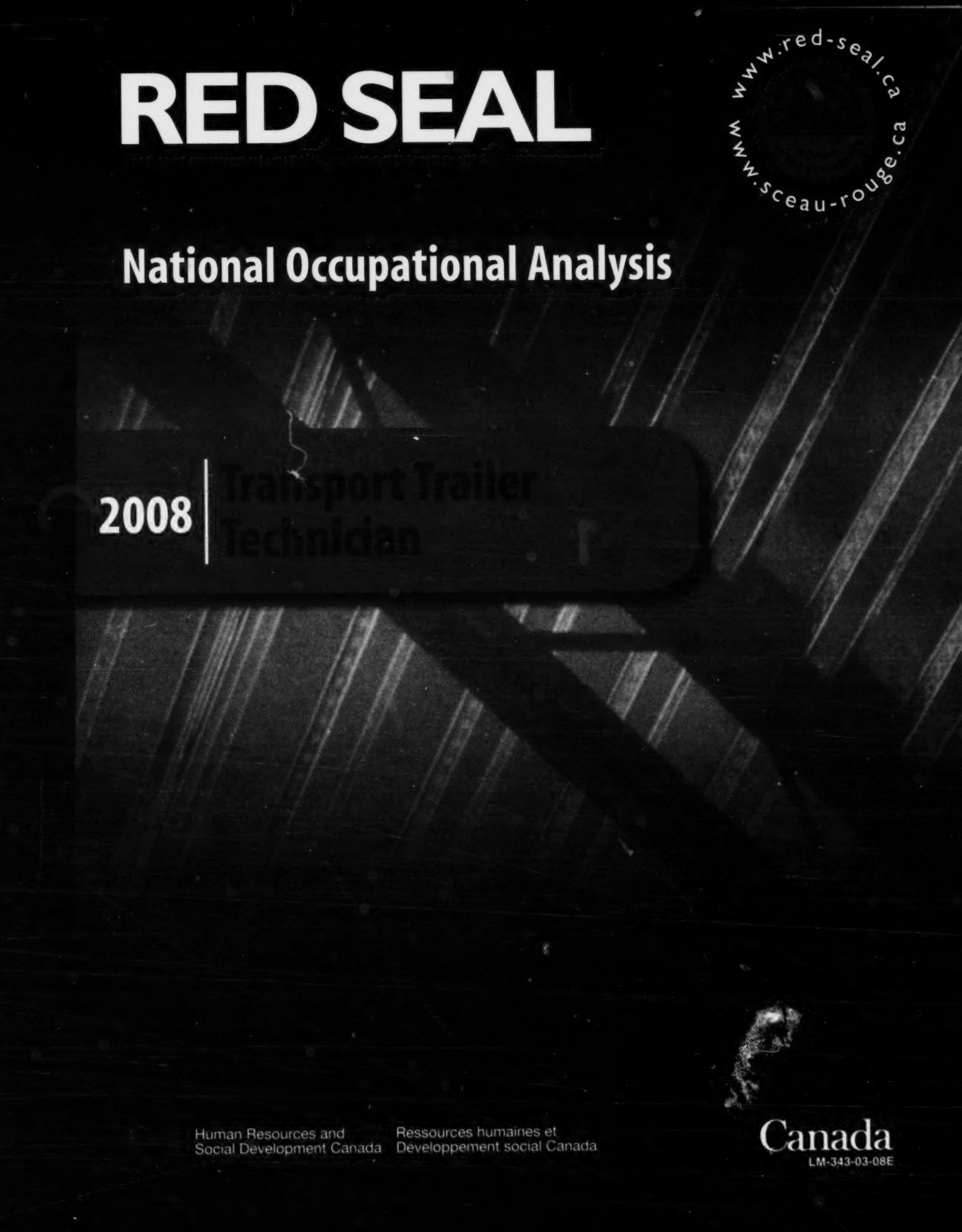
National Occupational Analysis



2008 | Transport Trailer Technician

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Occupational Analyses Series

Transport Trailer Technician

2008

Trades and Apprenticeship Division	Division des métiers et de l'apprentissage
Workplace Partnerships Directorate	Direction des partenariats en milieu de travail
National Occupational Classification:	7321
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The Canadian Council of Directors of Apprenticeship (CCDA) recognizes this National Occupational Analysis as the national standard for the occupation of Transport Trailer Technician.

Background

The first National Conference on Apprenticeship in Trades and Industries, held in Ottawa in 1952, recommended that the federal government be requested to cooperate with provincial and territorial apprenticeship committees and officials in preparing analyses of a number of skilled occupations. To this end, Human Resources and Social Development Canada (HRSDC) sponsors a program, under the guidance of the Canadian Council of Directors of Apprenticeship (CCDA), to develop a series of national occupational analyses.

The National Occupational Analyses have the following objectives:

- to describe and group the tasks performed by skilled workers;
- to identify which tasks are performed in every province and territory;
- to develop instruments for use in the preparation of Interprovincial Red Seal Examinations and curricula for training leading to the certification of skilled workers;
- to facilitate the mobility of apprentices and skilled workers in Canada; and,
- to supply employers, employees, associations, industries, training institutions and governments with analyses of occupations.

ACKNOWLEDGEMENTS

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This analysis was prepared by the Workplace Partnerships Directorate of HRSDC. The coordinating, facilitating and processing of this analysis were undertaken by employees of the National Occupational Analysis (NOA) development team of the Trades and Apprenticeship Division. Nancy Eller for the host jurisdiction of Manitoba also participated in the development of this NOA.

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LIST OF PUBLISHED NATIONAL OCCUPATIONAL ANALYSES (Red Seal Trades)

TITLE	NOC* Code
Agricultural Equipment Technician (2007)	7312
Appliance Service Technician (2005)	7332
Automotive Painter (2005)	7322
Automotive Service Technician (2005)	7321
Baker (2006)	6252
Boilermaker (2003)	7262
Bricklayer (2007)	7281
Cabinetmaker (2007)	7272
Carpenter (2005)	7271
Concrete Finisher (2006)	7282
Construction Electrician (2003)	7241
Cook (2003)	6242
Electrical Rewind Mechanic (1999)	7333
Electronics Technician – Consumer Products (1997)	2242
Floorcovering Installer (2005)	7295
Glazier (2004)	7292
Hairstylist (2005)	6271
Heavy Duty Equipment Technician (2004)	7312
Industrial Electrician (2003)	7242
Industrial Mechanic (Millwright) (2007)	2243
Instrumentation and Control Technician (2007)	7311
Insulator (Heat and Frost) (2007)	7293
Ironworker (Generalist) (2006)	7264
Ironworker (Reinforcing) (2006)	7264
Ironworker (Structural/Ornamental) (2006)	7264
Lather (Interior Systems Mechanic) (2007)	7284
Machinist (2005)	7231

* National Occupational Classification

TITLE	NOC* Code
Metal Fabricator (Fitter) (2003)	7263
Mobile Crane Operator (2006)	7371
Motorcycle Mechanic (2006)	7334
Motor Vehicle Body Repairer (Metal and Paint) (2005)	7322
Oil Burner Mechanic (2006)	7331
Painter and Decorator (2007)	7294
Partsperson (2005)	1472
Plumber (2003)	7251
Powerline Technician (2004)	7244
Recreation Vehicle Service Technician (2006)	7383
Refrigeration and Air Conditioning Mechanic (2004)	7313
Rig Technician (2008)	8232
Roofer (2006)	7291
Sheet Metal Worker (2006)	7261
Sprinkler System Installer (2003)	7252
Steamfitter — Pipefitter (2007)	7252
Tilesetter (2004)	7283
Tool and Die Maker (2005)	7232
Transport Trailer Technician (2008)	7321
Truck and Transport Mechanic (2007)	7321
Welder (2004)	7265

Requests for these National Occupational Analyses may be forwarded to:

Trades and Apprenticeship Division
Workplace Partnership Directorate
Human Resources and Social Development Canada
140 Promenade du Portage, Phase IV, 5th Floor
Gatineau, Quebec K1A 0J9

These publications are also available to order or download online at: www.red-seal.ca. Links to Essential Skills Profiles for some of these trades are available on this website.

To facilitate understanding of the occupation, the work performed is divided into the following categories:

Block	the largest division within the analysis which reflects a distinct set of operations relevant to the occupation.
Task	the distinct activity that, combined with others, makes up the logical and necessary steps the worker is required to perform in a block.
Sub-Task	the smallest division of work activities that, combined together, fully describe all duties of a task.
Supporting Knowledge and Abilities	the elements of skill and knowledge that an individual must acquire to adequately perform a sub-task.

Information on the following areas of this occupation is also provided throughout the analysis:

Trends	any shifts or changes in technology that affect the block.
Context	statements written to clarify the intent and meaning of tasks.
Related Components	components related to a specified task being undertaken.
Tools and Equipment	types of tools and equipment necessary to perform the work on all given tasks identified within the block. More detailed lists of these types are shown in Appendix A.

The appendices located at the end of the analysis are described as follows:

Appendix A — Tools and Equipment	a non-exhaustive list of tools and equipment used in this trade.
Appendix B — Glossary	definitions or explanations for terms used in this analysis.
Appendix C — Acronyms	a list of acronyms used in this analysis with their full name.
Appendix D — Block and Task Weighting	the block and task percentages as submitted by each jurisdiction at the validation stage and the national averages of these percentages.
Appendix E — Pie Chart	a graph which depicts the national percentages assigned to blocks.
Appendix F — Task Profile Chart	a chart which outlines graphically the blocks, tasks and sub-tasks of this analysis.

Development of Analysis

A draft analysis is developed by a committee of industry experts in the field led by a team of facilitators from HRSDC. This draft analysis breaks down all the tasks performed in the occupation and describes the knowledge and abilities required for a tradesperson to demonstrate competence in the trade.

The NOA development team then forwards a copy of the analysis and its translation to provincial/territorial authorities for a review of its content and structure. Their recommendations are assessed and incorporated into the analysis.

Validation and Weighting Method

This copy of the analysis is sent to all provinces/territories for validation and weighting. Each jurisdiction validates the document with the use of a provincial/territorial trade advisory committee. They examine the blocks, tasks and sub-tasks of the analysis:

BLOCKS Each committee assigns percentages to blocks based on the number of questions that they would assign for each block on a hundred question examination of the entire trade.

TASKS Each committee assigns percentages to tasks based on the number of questions that would be assigned to each task on a hundred question examination for its block.

SUB-TASKS Sub-tasks are examined by each committee and they indicate with a YES or NO whether or not each sub-task is performed by the skilled workers within the occupation in their jurisdiction.

The results of this exercise are submitted to the NOA development team who then analyzes the data and incorporates it into the document. The analysis provides the individual jurisdictional validation results as well as the national averages of all responses. The national averages for block and task weighting provide guidelines for the development of the Interprovincial Red Seal Examination for the trade.

This method for the validation of the National Occupational Analysis also identifies common core sub-tasks across Canada for the occupation. If at least 70% of the responding jurisdictions perform a sub-task, it shall be considered common core. Interprovincial Red Seal Examinations are based on the common core sub-tasks identified through this validation process.

Definitions for Validation and Weighting

YES	sub-task is performed by qualified workers in the occupation in a specific jurisdiction.
NO	sub-task is not performed by qualified workers in the occupation in a specific jurisdiction.
NV	Not Validated by a province/territory.
ND	Not Designated in a province/territory.
NOT COMMON CORE (NCC)	sub-task, task or block is performed by less than 70% of responding jurisdictions; these are not to appear on the Interprovincial Red Seal Examination for this trade.
BLOCK %	the average percentage of questions that will be placed on an Interprovincial Red Seal Examination to assess each block of the analysis.
TASK %	the average percentage of questions that will be placed on an Interprovincial Red Seal Examination to assess each task of the analysis.

Provincial/Territorial Abbreviations

NL	Newfoundland and Labrador
NS	Nova Scotia
PE	Prince Edward Island
NB	New Brunswick
QC	Quebec
ON	Ontario
MB	Manitoba
SK	Saskatchewan
AB	Alberta
BC	British Columbia
NT	Northwest Territories
YT	Yukon Territory
NU	Nunavut

ANALYSIS

Safe working procedures and conditions, accident prevention, and the preservation of health are of primary importance to industry in Canada. These responsibilities are shared and require the joint efforts of government, employers and employees. It is imperative that all parties become aware of circumstances that may lead to injury or harm. Safe learning experiences and work environments can be created by controlling the variables and behaviours that may contribute to accidents or injury.

It is generally recognized that safety-conscious attitudes and work practices contribute to a healthy, safe and accident-free work environment.

It is imperative to apply and be familiar with the Occupational Health and Safety Acts (OH&S) and Workplace Hazardous Materials Information System (WHMIS) Regulations. As well, it is essential to determine workplace hazards and take measures to protect oneself, co-workers, the public and the environment.

Safety education is an integral part of training in all jurisdictions. As safety is an imperative part of all trades, it is assumed and therefore it is not included as a qualifier of any activities. However, the technical safety tasks and sub-tasks specific to the trade are included in this analysis.

SCOPE OF THE TRANSPORT TRAILER TECHNICIAN TRADE

"Transport Trailer Technician" is this trade's official Red Seal occupational title approved by the CCDA. This analysis covers tasks performed by transport trailer technicians whose occupational title has been identified by some provinces and territories of Canada under the following names:

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
Commercial Trailer Mechanic										✓			
Commercial Trailer Technician				✓									
Transport Trailer Technician		✓					✓						
Truck-Trailer Repairer	✓		✓										
Truck and Trailer Repairer												✓	
Truck-Trailer Service Technician						✓							

Transport trailer technicians inspect, diagnose, maintain and repair transport trailers connected to or moved by a power unit. Trailers include flat decks, dry freight vans, refrigerated vans, tankers, converters, boosters, jeeps, pole trailers, steering dollies, dump trailers and any other commercial pull-type units. Transport trailer technicians inspect, service and repair parts and components of systems such as suspension and brake systems, mechanical and electrical components, flooring, hydraulic systems, axles, wheel assemblies and coupling units. Technicians may specialize in sheet metal work, frame repair or replacement, and heating and refrigeration unit repairs.

Transport trailer technicians are employed at trailer manufacturers, sales and repair facilities, as well as at construction or industrial sites and fleet repair shops. They may work in a shop or out of a mobile service vehicle.

To meet government standards and regulations, transport trailer technicians may have to attain specialty certifications in order to perform work-related tasks. A propane license, refrigeration certificate, tanker inspection certificate, specialized pressure vessel welding license, wheel and tire certification, wheel and rim torquing certification, and government inspector certificate are examples of additional certification that may be required by certain jurisdictions.

Technicians must practice safe operating procedures and be conscious of the impact on people, equipment, work area and environment when performing their work. Due to the size and complexity of the equipment, safety is of prime importance. There is an inherent risk of injury when working with heavy equipment, power tools and welding equipment. There are also risks associated with working around loud noises, grease, oil, gasoline and various exhaust fumes. Hazardous cargo or residue contained within trailers can pose a risk to technicians.

The work requires considerable standing, climbing, crouching, kneeling and heavy lifting. Good vision, hearing and sense of smell, as well as the ability to think logically, allow transport trailer technicians to identify and isolate problems. Technicians must also be able to diagnose complex problems and interpret technical manuals and schematics. Building and fabrication skills are also an asset.

This analysis recognizes similarities or overlaps with the work of truck and transport mechanics, refrigeration and air conditioning mechanics, welders, motor vehicle body repairers, partspersons and heavy duty equipment technicians.

With experience, transport trailer technicians act as mentors and trainers to apprentices in the trade. They may also advance to supervisory, service management and training positions.

In order to maximize load capacities, lighter, longer and stronger trailers are always entering the market. As a result, repair procedures are changing due to the use of new materials such as aluminum and composites. There are also new products that can be added to trailers to improve safety and longevity.

Computer and diagnostic skills have become required to work in the trade. Computers are used in trailers for a variety of functions, and computerized diagnostic equipment is more common.

There are opportunities for specialization such as in antilock brake systems (ABS), body work, fabrication and refrigeration/heating.

There has been greater emphasis on environmentally friendly and less hazardous products, with better recycling, disposal and handling procedures.

BLOCK A — OCCUPATIONAL SKILLS

Context — Transport trailer technicians must use tools and maintenance information to perform all tasks in their trade. Organizing work includes using documentation, communicating effectively and working within the parameters of shop policies. Transport trailer technicians must adhere to safety procedures and regulations. Work practices in this block are tasks which may be performed throughout this trade.

Trends — Because of the new electronic and computerized equipment on transport trailers, diagnostic equipment has evolved. Electronic manuals and service bulletins are becoming more common.

Related Components — All components apply.

Tools and Equipment — See Appendix A.

Task 1 — Uses and maintains tools and equipment.

Sub-task 1.01 — **Maintains hand tools.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

1.01.01	knowledge of types of hand tools
1.01.02	knowledge of operating procedures
1.01.03	knowledge of imperial system and International System of Units (SI)
1.01.04	knowledge of types of specialty tools such as pullers, presses and tamper-proof tools
1.01.05	ability to store hand tools
1.01.06	ability to recognize worn, damaged or defective hand tools

Sub-task
1.02 **Maintains electric and pneumatic tools.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

1.02.01	knowledge of types of electric tools such as drills, grinders and electric saws
1.02.02	knowledge of types of pneumatic tools such as impacts, die grinders and air drills
1.02.03	knowledge of operating procedures
1.02.04	knowledge of manufacturers' maintenance specifications such as lubrication and calibration schedules
1.02.05	ability to sharpen drill bits
1.02.06	ability to clean and lubricate pneumatic tools
1.02.07	ability to store electric and pneumatic tools
1.02.08	ability to recognize worn, damaged or defective electric and pneumatic tools

Sub-task
1.03 **Maintains measuring, testing and diagnostic equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

1.03.01	knowledge of measuring devices such as micrometers, calipers and tape measures
1.03.02	knowledge of testing devices such as pressure gauges, multimeters and flow meters
1.03.03	knowledge of diagnostic equipment such as computers and handheld diagnostic tools
1.03.04	knowledge of operating procedures
1.03.05	knowledge of manufacturers' maintenance specifications
1.03.06	knowledge of measuring, testing and diagnostic equipment that can be recalibrated
1.03.07	ability to reset measuring, testing and diagnostic equipment

1.03.08 ability to store measuring, testing and diagnostic equipment

1.03.09 ability to recognize worn, damaged or defective measuring, testing and diagnostic equipment

---

Sub-task
1.04 **Uses hoisting and lifting equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

1.04.01 knowledge of types of hoisting and lifting equipment such as floor jacks, chain hoists, overhead cranes and bumper jacks

1.04.02 knowledge of operating procedures

1.04.03 knowledge of applications of hoisting and lifting equipment

1.04.04 knowledge of limitations of hoisting and lifting equipment

1.04.05 knowledge of manufacturers' maintenance specifications

1.04.06 ability to recognize and interpret tags on equipment identifying load limits

1.04.07 ability to recognize safe lifting locations or points

1.04.08 ability to maintain hoisting and lifting equipment

1.04.09 ability to store hoisting and lifting equipment

1.04.10 ability to recognize potential hazards such as ceiling heights, overhead wires and uneven surfaces

1.04.11 ability to recognize worn, damaged or defective hoisting and lifting equipment

---

Sub-task
1.05 **Uses staging and access equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

1.05.01 knowledge of types of staging equipment such as axle stands and blocking

1.05.02 knowledge of types of access equipment such as ladders, scaffolds and steps

1.05.03	knowledge of load limitations of staging and access equipment and supporting devices
1.05.04	knowledge of manufacturers' maintenance specifications
1.05.05	ability to recognize and interpret tags on staging equipment identifying load limits
1.05.06	ability to locate safe staging points
1.05.07	ability to maintain staging equipment
1.05.08	ability to store staging and access equipment
1.05.09	ability to recognize worn, damaged or defective staging and access equipment

---

Sub-task
1.06 **Uses personal protective equipment (PPE) and safety equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

1.06.01	knowledge of types of PPE such as respiratory, hearing, eye and body protection
1.06.02	knowledge of types of safety equipment such as caging devices, shop ventilation, fire extinguishers, eye wash stations and first aid kit
1.06.03	knowledge of PPE and safety equipment operations
1.06.04	knowledge of workplace safety and health regulations such as fall protection and Workplace Hazardous Materials Information System (WHMIS)
1.06.05	knowledge of location of safety equipment
1.06.06	knowledge of limitations of PPE and safety equipment
1.06.07	ability to recognize worksite hazards
1.06.08	ability to store PPE and safety equipment
1.06.09	ability to recognize worn, damaged or defective PPE and safety equipment

---

Sub-task
1.07 **Uses welding equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

1.07.01	knowledge of types of welding equipment such as oxy-acetylene (OAW) and gas metal arc welding (GMAW)
1.07.02	knowledge of welding materials such as covered and coiled wire electrodes, and shielding gases
1.07.03	knowledge of basic welding procedures
1.07.04	knowledge of jurisdictional regulations for welding procedures
1.07.05	knowledge of welding principles and considerations
1.07.06	ability to maintain welding equipment such as cleaning welding tips, electrode holders and ground clamps
1.07.07	ability to transport welding equipment according to standards such as federal, provincial and territorial regulations and Transport of Dangerous Goods (TDG)
1.07.08	ability to store and secure welding equipment
1.07.09	ability to recognize worn, damaged or defective welding equipment and potential hazards

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Sub-task
1.08 **Uses gas and electric cutting equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

1.08.01	knowledge of types of gas cutting equipment such as oxy-acetylene torches and propane torches
1.08.02	knowledge of types of electric cutting equipment such as plasma cutters and laser cutters
1.08.03	knowledge of gas and electric cutting principles and considerations
1.08.04	knowledge of basic gas and electric cutting procedures
1.08.05	ability to maintain gas and electric cutting equipment such as cutting tips, torch bodies, hoses and gauges
1.08.06	ability to transport gas and electric cutting equipment according to standards such as federal, provincial and territorial regulations and TDG
1.08.07	ability to store and secure gas and electric cutting equipment
1.08.08	ability to recognize worn, damaged or defective gas and electric cutting equipment and potential hazards

Task 2 Organizes work.

Sub-task
2.01 **Uses documentation and reference materials.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

2.01.01	knowledge of types of documentation and reference materials such as service manuals, installation manuals and schematics
2.01.02	knowledge of documentation and reference material formats such as paper and electronic
2.01.03	knowledge of jurisdictional/industry regulations
2.01.04	ability to organize documentation and reference materials
2.01.05	ability to retrieve and apply information
2.01.06	ability to locate information such as vehicle identification numbers (VIN) and suspension model numbers
2.01.07	ability to interpret shop service manuals
2.01.08	ability to interpret shop drawings and schematics
2.01.09	ability to document service records and safety checks
2.01.10	ability to refer to manufacturers' specifications and diagnostic and servicing procedures

Sub-task
2.02 **Communicates with others.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

2.02.01	knowledge of technical terminology
2.02.02	knowledge of industry policies and procedures, guidelines and standards
2.02.03	knowledge of verbal and written communication
2.02.04	ability to use communication equipment and media such as Internet, email and fax

2.02.05	ability to translate technical information into layperson's terms
2.02.06	ability to acquire information through questioning
2.02.07	ability to communicate with industry professionals such as partspersons, supervisors and other mechanics
2.02.08	ability to communicate with customers
2.02.09	ability to communicate with manufacturer representatives and salespeople
2.02.10	ability to mentor apprentices

Sub-task
2.03 **Maintains safe work environment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

2.03.01	knowledge of WHMIS
2.03.02	knowledge of emergency phone numbers
2.03.03	knowledge of industry-related safety acts and regulations
2.03.04	knowledge of company policies and procedures such as evacuation routes, location of safety equipment and safety training
2.03.05	knowledge of disposal and recycling procedures
2.03.06	knowledge of specialized training requirements and certification such as confined space entry and fall protection
2.03.07	ability to recognize potential hazards such as fluids and gases under high pressure in hydraulic, pneumatic and refrigeration systems
2.03.08	ability to handle and store hazardous materials
2.03.09	ability to perform visual inspection of vehicles and surrounding work area

Task 3 — Performs routine trade activities.

Sub-task 3.01 — Maintains fluids and lubricants.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

3.01.01	knowledge of types of fluids such as oil, methyl hydrate and fuel
3.01.02	knowledge of types of lubricants such as synthetic, semi-synthetic and non-synthetic
3.01.03	knowledge of disposal and recycling of fluids
3.01.04	knowledge of fluid and lubricant properties
3.01.05	ability to perform sensory inspections of fluids and lubricants
3.01.06	ability to verify fluid levels such as hub oil, hydraulic and coolants
3.01.07	ability to identify and select types and grades of fluids and lubricants appropriate for the application
3.01.08	ability to store and dispose of fluids and lubricants according to regulations

Sub-task 3.02 — Lubricates parts and components.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

3.02.01	knowledge of types of lubricants
3.02.02	knowledge of locations of lubrication points
3.02.03	ability to select lubricant required for specific application
3.02.04	ability to inspect components prior to lubricating
3.02.05	ability to use lubricating equipment such as grease guns, auto-lube systems and oil delivery systems

Sub-task
3.03 **Cleans parts and components.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

3.03.01	knowledge of types of cleaning agents
3.03.02	knowledge of effects of cleaning agents on different types of surfaces
3.03.03	knowledge of handling, storage and disposal requirements for cleaning agents
3.03.04	knowledge of ventilation requirements
3.03.05	ability to select cleaning agent required for specific application
3.03.06	ability to apply cleaning procedures
3.03.07	ability to use cleaning equipment such as parts washers and pressure washers

Sub-task
3.04 **Uses fasteners, sealants, adhesives and gaskets.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

3.04.01	knowledge of types and grades of fasteners
3.04.02	knowledge of types and properties of sealants, adhesives and gaskets
3.04.03	knowledge of chemical reactions of sealants and adhesives
3.04.04	knowledge of torque specifications of fasteners
3.04.05	ability to select and use tools and attachments for specific fasteners
3.04.06	ability to select and install fasteners, sealants, adhesives and gaskets
3.04.07	ability to repair threads using tools such as taps, dies and chasers
3.04.08	ability to remove broken fasteners

Sub-task

3.05 **Installs hoses, tubing and fittings.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

3.05.01	knowledge of types of hoses, tubing and fittings such as plastic and rubber
3.05.02	knowledge of regulations regarding hoses, tubing and fittings
3.05.03	knowledge of sizes and specifications of hoses, tubing and fittings
3.05.04	knowledge of compatibility of hoses, tubing and fittings
3.05.05	knowledge of installation procedures and techniques for hoses, tubing and fittings
3.05.06	ability to route and secure hoses, tubing and fittings
3.05.07	ability to identify and select hoses, tubing and fittings
3.05.08	ability to relieve pressure from air and fluid systems before disconnecting hoses, tubing and fittings
3.05.09	ability to remove and replace hoses, tubing and fittings

BLOCK B — SUSPENSION SYSTEMS

Context

Suspensions systems are used to support and cushion the trailer, absorbing road surface irregularities and smoothing the vehicle ride. They are designed to permit controlled wheel movement over irregular surfaces and allow trailers to track in a straight line.

In this analysis, service includes repair, replacement, rebuild, adjustment and general maintenance.

Trends

New technologies provide lighter, stronger suspension systems such as composite spring suspensions.

Multi-functional air bags are now available, acting as both a suspension system during normal operation, and as a lifting device for loading and unloading. This provides easier access to loading docks.

Some technologies — such as on-board scales — are being developed to improve safety.

Related Components (including, but not limited to)

Air suspension systems: air springs, valves, suspension beams, suspension hangers, suspension bushings, shock absorbers, u-bolts, air lines, fasteners.

Spring suspension systems: leafs, fasteners, hangers, equalizers, radius rods (torque rods), bushings.

Rubber block suspension systems: trunnion bushings, radius rods, rubber blocks, walking beams.

Tools and Equipment

See Appendix A.

Task 4 — Diagnoses suspension systems.

Sub-task 4.01 — **Diagnoses air suspension systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

4.01.01	knowledge of types of air suspension systems
4.01.02	knowledge of manufacturers' specifications
4.01.03	knowledge of air suspension components such as air valves, air springs and height control valves
4.01.04	knowledge of air supply and operating pressure
4.01.05	ability to select and use diagnostic tools and equipment
4.01.06	ability to operate air suspension systems
4.01.07	ability to identify problems of air supply and flow
4.01.08	ability to interpret test results

Sub-task
4.02 **Diagnoses spring suspension systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

4.02.01	knowledge of types of spring suspension systems
4.02.02	knowledge of manufacturers' specifications
4.02.03	knowledge of spring suspension components such as equalizers, hangers and radius rods (torque rods)
4.02.04	ability to perform visual inspections
4.02.05	ability to select and use tools and equipment
4.02.06	ability to recognize worn, damaged or defective components
4.02.07	ability to identify spring suspension system problems

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Sub-task
4.03 **Diagnoses rubber block suspension systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

4.03.01	knowledge of types of rubber block suspension systems
4.03.02	knowledge of manufacturers' specifications
4.03.03	knowledge of rubber block suspension components such as torque arms, radius rods and trunnion bushings
4.03.04	ability to perform visual inspections
4.03.05	ability to select and use tools and equipment
4.03.06	ability to recognize worn, damaged or defective components
4.03.07	ability to identify rubber block suspension system problems

Task 5 Services suspension systems.

Sub-task 5.01 **Maintains suspension systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

5.01.01	knowledge of types of suspension systems
5.01.02	knowledge of manufacturers' maintenance procedures and schedules
5.01.03	knowledge of manufacturers' specifications
5.01.04	ability to perform sensory inspections
5.01.05	ability to recognize worn, damaged or defective components
5.01.06	ability to select and use tools and equipment
5.01.07	ability to perform alignment adjustments

Sub-task 5.02 **Repairs air suspension systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

5.02.01	knowledge of types of air suspension systems
5.02.02	knowledge of manufacturers' specifications
5.02.03	knowledge of components of air suspension systems such as suspension beams, air springs and control valves
5.02.04	knowledge of components that can be repaired, replaced or adjusted
5.02.05	ability to select and use tools and equipment
5.02.06	ability to decompress air systems
5.02.07	ability to remove components such as air springs and suspension beams
5.02.08	ability to repair components to manufacturers' specifications
5.02.09	ability to replace or reinstall components
5.02.10	ability to adjust components for alignment

Sub-task
5.03 **Repairs spring suspension systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

5.03.01	knowledge of types of spring suspension systems
5.03.02	knowledge of manufacturers' specifications
5.03.03	knowledge of components of spring suspension systems such as springs, u-bolts and equalizer beams
5.03.04	knowledge of components that can be repaired, replaced or adjusted
5.03.05	ability to select and use tools and equipment
5.03.06	ability to remove components
5.03.07	ability to repair components to manufacturers' specifications
5.03.08	ability to replace or reinstall components
5.03.09	ability to adjust components for alignment

Sub-task
5.04 **Repairs rubber block suspension systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

5.04.01	knowledge of types of rubber block suspension systems
5.04.02	knowledge of manufacturers' specifications
5.04.03	knowledge of components of rubber block suspension systems such as trunnion bushings, rubber blocks and radius rods
5.04.04	knowledge of components that can be repaired, replaced or adjusted
5.04.05	ability to select and use tools and equipment
5.04.06	ability to remove components
5.04.07	ability to repair components to manufacturers' specifications
5.04.08	ability to replace or reinstall components
5.04.09	ability to adjust components for alignment

Sub-task
5.05 **Verifies servicing of suspension systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

5.05.01	knowledge of operation of suspension systems
5.05.02	knowledge of manufacturers' specifications
5.05.03	ability to select and use tools and equipment
5.05.04	ability to perform wheel alignment
5.05.05	ability to perform sensory inspections
5.05.06	ability to torque fasteners to specifications
5.05.07	ability to test unit to verify operation

BLOCK C BRAKE SYSTEMS

Context

Brake systems slow or stop the vehicle in a safe and controlled manner by using air, hydraulic or electric controls. The trailer brake systems are operated by the power unit that supplies air, hydraulic or electric controlled signals. Antilock brake systems (ABSs) are incorporated in today's manufactured trailers to increase safety.

In this analysis, service includes repair, replacement, rebuild, adjustment and general maintenance.

Trends

There is an increased use of disc brake systems. ABSs are being refined to decrease their failure rate and to improve the braking efficiencies of trailers. In addition to the ABS functions, roll stability controls are being incorporated to increase safety of operation.

Related Components (including, but not limited to)

Disc brake systems: rotors, calipers, pads, valves, hardware.

Drum brake systems: shoes, hardware, drums.

Air brake systems: camshafts, bushings, slack adjusters, valves, brake chambers.

Hydraulic brake systems: master cylinders, wheel cylinders, brake lines, fittings.

Electric brake systems: magnets, adjusters, wiring, controllers.

Antilock brake systems (ABSs): valves, sensors, wiring, cables, modulator, electronic control unit (ECU).

Tools and Equipment

See Appendix A.

Task 6 Diagnoses brake systems.

Sub-task 6.01 **Diagnoses disc brake foundation systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

6.01.01	knowledge of types of disc brake systems such as hydraulic and air .
6.01.02	knowledge of operation of disc brake systems
6.01.03	knowledge of manufacturers' specifications
6.01.04	knowledge of component functions
6.01.05	ability to select and use tools and equipment
6.01.06	ability to perform sensory inspections
6.01.07	ability to recognize worn, damaged or defective components
6.01.08	ability to identify disc brake problems

Sub-task
6.02 **Diagnoses drum brake foundation systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

6.02.01	knowledge of types of drum brake systems such as air, hydraulic and electric
6.02.02	knowledge of operation of drum brake systems
6.02.03	knowledge of types and sizes of drum brake components
6.02.04	knowledge of manufacturers' specifications
6.02.05	knowledge of component functions
6.02.06	ability to select and use tools and equipment
6.02.07	ability to recognize worn, damaged or defective components
6.02.08	ability to identify drum brake problems pertaining to air, hydraulic and electric systems

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Sub-task
6.03 **Diagnoses air brake systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

6.03.01	knowledge of types of air brake systems
6.03.02	knowledge of operation of air brake systems
6.03.03	knowledge of manufacturers' specifications
6.03.04	knowledge of component functions
6.03.05	ability to select and use tools and equipment such as electronic testing equipment and gauges
6.03.06	ability to identify air brake system problems
6.03.07	ability to recognize worn, damaged or defective components

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Sub-task
6.04 **Diagnoses hydraulic brake systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

6.04.01	knowledge of types of hydraulic brake systems such as surge, air-actuated and vacuum-actuated
6.04.02	knowledge of operation of hydraulic brake systems
6.04.03	knowledge of manufacturers' specifications
6.04.04	knowledge of component functions
6.04.05	ability to select and use tools and equipment such as measuring and diagnostic equipment
6.04.06	ability to identify hydraulic brake system problems
6.04.07	ability to recognize worn, damaged or defective components

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Sub-task
6.05 **Diagnoses electric brake systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

6.05.01	knowledge of types of electric brake systems
6.05.02	knowledge of operation of electric brake systems
6.05.03	knowledge of manufacturers' specifications
6.05.04	knowledge of component functions
6.05.05	ability to select and use tools and equipment such as measuring and diagnostic equipment
6.05.06	ability to identify electric brake system problems
6.05.07	ability to recognize worn, damaged or defective components

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Sub-task 6.06 **Diagnoses antilock brake systems (ABSs).**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

6.06.01	knowledge of types of ABSs
6.06.02	knowledge of operation of ABSs
6.06.03	knowledge of manufacturers' specifications
6.06.04	knowledge of component functions
6.06.05	ability to select and use tools and equipment such as measuring and diagnostic equipment
6.06.06	ability to identify ABS component problems
6.06.07	ability to recognize worn, damaged or defective components

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Task 7 **Services brake systems.**

Sub-task 7.01 **Maintains brake systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

7.01.01	knowledge of manufacturers' specifications
7.01.02	knowledge of the operation of brake systems
7.01.03	knowledge of maintenance procedures such as lubrication, verification of wear and adjustment
7.01.04	knowledge of system contamination
7.01.05	knowledge of maintenance intervals
7.01.06	ability to select and use tools and equipment
7.01.07	ability to perform sensory inspection
7.01.08	ability to recognize worn, damaged or defective components
7.01.09	ability to adjust components such as slack adjusters and wheel sensors

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Sub-task
7.02 **Repairs disc brake foundation systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

7.02.01	knowledge of disc brake system components such as rotors, calipers, pads and hardware
7.02.02	knowledge of component functions
7.02.03	knowledge of manufacturers' specifications
7.02.04	knowledge of component replacement procedures
7.02.05	knowledge of disc brake components that can be repaired, replaced or adjusted
7.02.06	ability to select and use tools and equipment
7.02.07	ability to remove components
7.02.08	ability to rebuild or repair components to manufacturers' specifications
7.02.09	ability to replace or reinstall disc brake components such as disc pads, calipers, rotors and fasteners
7.02.10	ability to shim and adjust components

Sub-task
7.03 **Repairs drum brake foundation systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

7.03.01	knowledge of drum brake system components such as brake drums, brake shoes, camshafts, slack adjusters and hardware
7.03.02	knowledge of component functions
7.03.03	knowledge of manufacturers' specifications
7.03.04	knowledge of component replacement procedures
7.03.05	knowledge of drum brake components that can be repaired, replaced or adjusted
7.03.06	ability to select and use tools and equipment
7.03.07	ability to remove components
7.03.08	ability to rebuild or repair components to manufacturers' specifications
7.03.09	ability to replace or reinstall drum brake components such as brake drums, brake shoes, camshafts, slack adjusters and hardware
7.03.10	ability to shim and adjust components

Sub-task
7.04 **Repairs air brake systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

7.04.01	knowledge of air brake system components such as valves, fittings, tubing, brake chambers and hoses
7.04.02	knowledge of component functions
7.04.03	knowledge of manufacturers' specifications
7.04.04	knowledge of component replacement procedures
7.04.05	knowledge of air brake components that can be repaired, replaced or adjusted
7.04.06	ability to select and use tools and equipment

7.04.07	ability to remove components
7.04.08	ability to replace or reinstall air brake components such as valves and sensors
7.04.09	ability to rebuild or repair air brake components to manufacturers' specifications
7.04.10	ability to adjust components

Sub-task
7.05 **Repairs hydraulic brake systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

7.05.01	knowledge of hydraulic brake system components such as valves, sensors, master cylinder, wheel cylinders, brake bleeders, tubing, lines and fittings
7.05.02	knowledge of component functions
7.05.03	knowledge of manufacturers' specifications
7.05.04	knowledge of component replacement procedures
7.05.05	knowledge of hydraulic brake components that can be repaired or replaced
7.05.06	ability to select and use tools and equipment
7.05.07	ability to remove components
7.05.08	ability to replace or reinstall hydraulic brake components such as valves and sensors
7.05.09	ability to rebuild or repair hydraulic brake components to manufacturers' specifications
7.05.10	ability to bleed system

Sub-task
7.06 **Repairs electric brake systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

7.06.01	knowledge of electric brake system components such as controllers and magnets
7.06.02	knowledge of component functions
7.06.03	knowledge of manufacturers' specifications
7.06.04	knowledge of component replacement procedures
7.06.05	knowledge of electric brake components that can be repaired, replaced or adjusted
7.06.06	ability to select and use tools and equipment
7.06.07	ability to remove components
7.06.08	ability to replace or reinstall electric brake components
7.06.09	ability to repair electric brake components to manufacturers' specifications
7.06.10	ability to adjust electric brakes

Sub-task
7.07 **Repairs antilock brake systems (ABSs).**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

7.07.01	knowledge of ABS components such as sensors, modules and valves
7.07.02	knowledge of component functions
7.07.03	knowledge of manufacturers' specifications
7.07.04	knowledge of component replacement procedures
7.07.05	knowledge of ABS components that can be repaired, replaced or adjusted
7.07.06	ability to select and use tools and equipment
7.07.07	ability to remove components
7.07.08	ability to replace or reinstall ABS components such as sensors, cables and valves
7.07.09	ability to repair ABS components to manufacturers' specifications
7.07.10	ability to adjust ABS sensors

Sub-task

7.08 **Verifies servicing of brake systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

7.08.01	knowledge of operation of brake systems
7.08.02	knowledge of manufacturers' specifications and procedures
7.08.03	ability to select and use diagnostic equipment
7.08.04	ability to test unit to verify operation
7.08.05	ability to perform sensory inspections

BLOCK D AXLES AND WHEEL END ASSEMBLIES

Context

Transport trailer technicians diagnose and service these systems and components in order to ensure the safe and correct operation of the vehicle.

In this analysis, service includes repair, replacement, rebuild, adjustment and general maintenance.

Trends

Automatic inflation systems have become more common, especially in fleets.

Nitrogen inflated tires are increasing in popularity. Nitrogen maintains a constant inflation pressure regardless of ambient temperature.

More self-steering axles are being used on trailers.

Related Components (including, but not limited to)

Axles and hubs: bearings, races, seals, gaskets, hub caps, nuts, axle assembly, studs, wheel clamps, valves, wheel spacers.

Steering and lift axles: king pins, tie rod ends, tie rods, locking pins, steering stops, shock absorbers, regulators.

Tires and rims: tires, tubes, stud-piloted rims, spoke wheels, hub-piloted rims, fasteners, valve stems, balancing systems, split rims, lock rings, tubeless rims, spacers, studs, wheel guards, wheel clamps, nuts.

Tools and Equipment

See Appendix A.

Task 8 Diagnoses axles and wheel end assemblies.

Sub-task 8.01 Diagnoses axles.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

8.01.01 knowledge of types of axles

8.01.03	knowledge of axle components such as spiders and brake chamber supports
8.01.04	knowledge of manufacturers' specifications such as welding practices and load capacities
8.01.05	knowledge of axle connection points
8.01.06	knowledge of bearing and spindle wear tolerances
8.01.07	knowledge of bearing end play
8.01.08	ability to identify axle problems
8.01.09	ability to select and use specialty alignment tools
8.01.10	ability to perform visual inspections
8.01.11	ability to recognize worn, damaged or defective components

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Sub-task
8.02 **Diagnoses hubs.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

8.02.01	knowledge of types of hubs such as spoke, stud-piloted and hub-piloted
8.02.02	knowledge of hub components such as hub caps, studs and nuts
8.02.03	knowledge of cup and cone bearings, and seals
8.02.04	knowledge of manufacturers' specifications
8.02.05	knowledge of bearing wear tolerances
8.02.06	knowledge of bearing preload and end play
8.02.07	ability to select and use diagnostic tools
8.02.08	ability to perform visual inspections
8.02.09	ability to identify hub problems such as spinning race, failed wheel seal and cracked hubs
8.02.10	ability to recognize worn, damaged or defective components

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Sub-task
8.03 **Diagnoses self-steering and lift axles.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

8.03.01	knowledge of types and models of self-steering and lift axles
8.03.02	knowledge of self-steering and lift axle components such as air springs, switches and valves
8.03.03	knowledge of manufacturers' specifications
8.03.04	knowledge of component functions
8.03.05	ability to operate self-steering and lift axles
8.03.06	ability to select and use tools and equipment
8.03.07	ability to perform visual inspections
8.03.08	ability to adjust and align self-steering and lift axles
8.03.09	ability to recognize worn, damaged or defective components

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Sub-task
8.04 **Diagnoses tires and rims.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

8.04.01	knowledge of types and sizes of tires and rims
8.04.02	knowledge of tire wear limits and inflation pressures
8.04.03	knowledge of manufacturers' specifications
8.04.04	knowledge of normal and irregular tire wear
8.04.05	knowledge of tire and rim components such as multi-piece rims and valve stems
8.04.06	knowledge of automatic inflation systems
8.04.07	ability to select and use measuring tools such as pressure gauges and tread gauges
8.04.08	ability to perform sensory inspections
8.04.09	ability to identify mismatched tires and multi-piece rims
8.04.10	ability to recognize rim irregularities such as dents, cracks, corrosion and wear

Task 9 Services axles and wheel end assemblies.

Sub-task
9.01 **Maintains axles and wheel end assemblies.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

9.01.01	knowledge of torque sequence of wheels
9.01.02	knowledge of manufacturers' maintenance procedures and schedules
9.01.03	knowledge of manufacturers' specifications
9.01.04	ability to select and use tools and equipment
9.01.05	ability to perform sensory inspections
9.01.06	ability to check and adjust inflation pressures
9.01.07	ability to check and maintain lubricant levels
9.01.08	ability to torque wheel nuts to specifications
9.01.09	ability to recognize worn and damaged components

Sub-task
9.02 **Repairs axles and hubs.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

9.02.01	knowledge of types of axles
9.02.02	knowledge of axle components such as spiders and brake chamber supports
9.02.03	knowledge of hub components such as hub fasteners, wheel bearings and seals
9.02.04	knowledge of manufacturers' specifications
9.02.05	knowledge of components that can be repaired, replaced or adjusted
9.02.06	knowledge of repair, replacement and adjustment procedures and techniques
9.02.07	ability to select and use specialty tools and equipment

9.02.08	ability to remove axles and hubs
9.02.09	ability to replace or reinstall axles and hubs
9.02.10	ability to align axles
9.02.11	ability to replace cup and cone bearings

Sub-task
9.03 **Repairs self-steering and lift axles.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

9.03.01	knowledge of types and models of self-steering and lift axles
9.03.02	knowledge of manufacturers' specifications
9.03.03	knowledge of self-steering and lift axle components such as air springs, switches and valves
9.03.04	knowledge of component functions
9.03.05	ability to operate self-steering and lift axles
9.03.06	ability to select and use specialty tools and equipment
9.03.07	ability to remove self-steering and lift axles and components
9.03.08	ability to replace or reinstall self-steering and lift axles and components
9.03.09	ability to adjust and align self-steering and lift axles

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Sub-task
9.04 **Replaces tires and rims.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

9.04.01	knowledge of manufacturers' specifications such as torque specifications and sequences
9.04.02	knowledge of inflation pressures and procedures
9.04.03	knowledge of types of tires and rims
9.04.04	knowledge of mounting components such as nuts, lugs and studs

9.04.05	ability to select and use tools and equipment such as tire cages, tire gauges and torque wrenches
9.04.06	ability to dismount and mount tires on rims
9.04.07	ability to inflate tires according to procedures

Sub-task
9.05 **Repairs tires. (NOT COMMON CORE)**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	no	yes	ND	yes	no	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

9.05.01	knowledge of tires that can be repaired
9.05.02	knowledge of repair techniques such as plugging and patching
9.05.03	knowledge of manufacturers' specifications
9.05.04	ability to select and use tools and materials for tire repair
9.05.05	ability to dismount and mount tires
9.05.06	ability to inflate tires according to procedures
9.05.07	ability to balance wheels

Sub-task
9.06 **Verifies servicing of axles and wheel end assemblies.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

9.06.01	knowledge of lubricant levels
9.06.02	knowledge of manufacturers' specifications such as end play, torque and axle connection points
9.06.03	ability to set pre-load and end play
9.06.04	ability to perform sensory inspections
9.06.05	ability to verify operation and condition of components

BLOCK E TRAILER CHASSIS, BODIES AND COUPLING UNITS

Context

Trailer chassis attach the trailer body to the suspension. They include frames, sub-frames and slider locking mechanisms. They distribute and carry the weight of the load to the suspension system.

Trailer bodies contain, secure and protect cargo. They vary in shape, size and application according to their intended use.

Coupling units secure the chassis to the power unit or to another chassis.

The landing gear supports the weight of the trailer when disconnected from the towing unit.

In this analysis, service includes repair, replacement, rebuild, adjustment and general maintenance.

Trends

Lightweight metals and composite materials are becoming more common for frames and other structural members such as cross members and floors. This allows trailers to be lighter and stronger, and maximizes cargo capabilities. There is also an increase in combination vehicles.

To improve trailer performance on the road and increase fuel efficiency, the shapes of the trailers are being modified aerodynamically. Technicians must keep up-to-date with new techniques for repairs and the introduction of new components.

Related Components (including, but not limited to)

Trailer chassis: cross members, sub-frames, slide rails, slider locks, slide stops, bumpers, fasteners, side rails, stiffener plates, adhesives, isolating membranes.

Trailer bodies: panels, posts, floors, top rails, roof bows, roofs, doors, door frames, locking devices, hatches, vents, valves, scuff liners, ladders, walkways, fall protection devices.

Coupling units: plates, fifth-wheels, king pins, slide plates, compensators, slide mechanisms, pintle-hooks, safety chains/cables, draw bar eyes, draw bars, turntables, locking pins.

Landing gear: wing plates, braces, cross shafts, crank handles, legs, fasteners, sand shoes, gears.

Tools and Equipment

See Appendix A.

Task 10 Diagnoses trailer chassis (frames, sub-frames, slider locking mechanisms) and trailer bodies.

Sub-task 10.01 Diagnoses trailer chassis (frames, sub-frames and slider locking mechanisms).

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

10.01.01	knowledge of types of frames such as I-beam, ladder and unibody
10.01.02	knowledge of types of sub-frames such as movable and stationary
10.01.03	knowledge of types of slider locking mechanisms such as air-release and manual-release
10.01.04	knowledge of trailer chassis components such as side rails, cross members, and stiffener plates
10.01.05	knowledge of manufacturers' specifications
10.01.06	ability to perform sensory inspections
10.01.07	ability to operate locking system
10.01.08	ability to recognize defects in frames and components such as cracks, corrosion and damaged components
10.01.09	ability to identify trailer chassis problems

Sub-task 10.02 Diagnoses trailer bodies.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

10.02.01	knowledge of types of trailer bodies
10.02.02	knowledge of components of trailer bodies such as post and panel, fiberglass reinforced panels (FRPs), and aluminum and structural side panels
10.02.03	knowledge of material properties and characteristics
10.02.04	knowledge of manufacturers' specifications

10.02.05	ability to recognize materials of trailer bodies
10.02.06	ability to evaluate structural integrity of trailer bodies
10.02.07	ability to recognize defects in trailer bodies and components
10.02.08	ability to recognize failed fasteners and adhesives
10.02.09	ability to perform sensory inspections

Task 11 Diagnoses coupling units and landing gear.

Sub-task 11.01 Diagnoses coupling units.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

11.01.01	knowledge of types of coupling units
11.01.02	knowledge of manufacturers' specifications
11.01.03	knowledge of operation of coupling units
11.01.04	knowledge of components of coupling units such as fifth-wheels, slide tracks, safety chains and pintle-hooks
11.01.05	ability to select and use diagnostic tools and equipment
11.01.06	ability to recognize defects in coupling units such as cracks, out-of-adjustment and wear
11.01.07	ability to perform sensory inspections
11.01.08	ability to identify coupling unit problems

Sub-task 11.02 Diagnoses landing gear.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

11.02.01	knowledge of types of landing gear

11.02.02	knowledge of manufacturers' specifications
11.02.03	knowledge of operation of landing gear
11.02.04	knowledge of components of landing gear such as crank handles, sand shoes and cross shafts
11.02.05	knowledge of structures associated with landing gear such as wing plates, supporting structures and braces
11.02.06	ability to select and use tools and equipment
11.02.07	ability to recognize defects in landing gear such as cracked mounting brackets, worn bearings and worn gears
11.02.08	ability to perform sensory inspections

Task 12 — Services trailer chassis (frames, sub-frames, slider locking mechanisms) and trailer bodies.

Sub-task 12.01 — Maintains trailer chassis (frames, sub-frames, slider locking mechanisms).

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

12.01.01	knowledge of types of frames such as I-beam, ladder and unibody
12.01.02	knowledge of types of sub-frames such as movable and stationary
12.01.03	knowledge of types of slider locking mechanisms such as air-release, manual-release and solid pin
12.01.04	knowledge of trailer chassis components such as side rails, cross members, stiffener plates and bumpers
12.01.05	knowledge of manufacturers' specifications such as wear limits
12.01.06	ability to select and use tools and equipment
12.01.07	ability to perform sensory inspections
12.01.08	ability to operate locking system
12.01.09	ability to recognize defects in frame and components such as cracks, elongated slider holes, corrosion and damaged components
12.01.10	ability to adjust components

Sub-task
12.02 **Maintains trailer bodies.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

12.02.01	knowledge of types of trailer bodies
12.02.02	knowledge of components of trailer bodies such as post and panel, FRPs, and composite, aluminum and structural side panels
12.02.03	knowledge of manufacturers' specifications
12.02.04	knowledge of trailer material properties and characteristics
12.02.05	knowledge of hazards of maintaining trailers such as trailer content (flammable, corrosive, explosive, toxic) and material being worked on
12.02.06	ability to select and use tools and equipment
12.02.07	ability to recognize materials of trailer bodies
12.02.08	ability to recognize defects in trailer bodies and components
12.02.09	ability to evaluate structural integrity of trailer bodies
12.02.10	ability to recognize failed fasteners and adhesives
12.02.11	ability to perform sensory inspections
12.02.12	ability to adjust components

Sub-task
12.03 **Repairs trailer chassis (frames, sub-frames and slider locking mechanisms).**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

12.03.01	knowledge of types of frames such as I-beam, ladder and unibody
12.03.02	knowledge of types of sub-frames such as movable and stationary
12.03.03	knowledge of types of slider locking mechanisms such as air-release, manual-release and solid pin
12.03.04	knowledge of trailer chassis components such as side rails, cross members, stiffener plates and bumpers

12.03.05	knowledge of manufacturers' specifications
12.03.06	knowledge of components that can be repaired, replaced or adjusted
12.03.07	ability to select and use tools and equipment
12.03.08	ability to operate locking systems
12.03.09	ability to remove components
12.03.10	ability to repair components to manufacturers' specifications
12.03.11	ability to replace or reinstall components
12.03.12	ability to adjust components

Sub-task
12.04 **Repairs trailer bodies.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

12.04.01	knowledge of types of trailer bodies such as tanker, unibody and van
12.04.02	knowledge of jurisdictional requirements and certification for working on different types of trailers such as pressure vessels and tank trailers
12.04.03	knowledge of components of trailer bodies such as post and panel, FRPs, and composite, aluminum and structural side panels
12.04.04	knowledge of manufacturers' specifications
12.04.05	knowledge of material properties and characteristics
12.04.06	knowledge of hazards of repairing trailers such as trailer content (flammable, corrosive, explosive, toxic) and material being worked on
12.04.07	knowledge of components that can be repaired, replaced or adjusted
12.04.08	ability to select and use tools and equipment
12.04.09	ability to recognize materials of trailer bodies
12.04.10	ability to remove components
12.04.11	ability to repair components to manufacturers' specifications
12.04.12	ability to replace or reinstall components
12.04.13	ability to adjust components

Sub-task 12.05 **Verifies servicing of trailer chassis (frames, sub-frames and slider locking mechanisms).**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

12.05.01	knowledge of types of frames such as I-beam, ladder and unibody
12.05.02	knowledge of types of sub-frames such as movable and stationary
12.05.03	knowledge of types of slider locking mechanisms such as air-release and manual-release
12.05.04	knowledge of trailer chassis components such as side rails, cross members, stiffener plates and bumpers
12.05.05	knowledge of manufacturers' specifications
12.05.06	ability to select and use tools and equipment such as torque wrenches and dial indicators
12.05.07	ability to operate and test locking systems
12.05.08	ability to adjust components
12.05.09	ability to perform sensory inspections

Sub-task 12.06 **Verifies servicing of trailer bodies.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

12.06.01	knowledge of types of trailer bodies such as tanker, unibody and flatbed
12.06.02	knowledge of components of trailer bodies such as post and panel, FRPs, and composite, aluminum and structural side panels
12.06.03	knowledge of manufacturers' specifications
12.06.04	knowledge of material properties and characteristics
12.06.05	knowledge of hazards of trailer content (flammable, corrosive, explosive, toxic)
12.06.06	ability to select and use tools and equipment
12.06.07	ability to recognize materials of trailer bodies

12.06.08	ability to adjust components
12.06.09	ability to perform sensory inspections

Task 13 Services coupling units and landing gear.

Sub-task 13.01 Maintains coupling units.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

13.01.01	knowledge of types of coupling units
13.01.02	knowledge of manufacturers' specifications
13.01.03	knowledge of operation of coupling units
13.01.04	knowledge of components of coupling units such as fifth-wheels, slide tracks, safety chains and pintle-hooks
13.01.05	ability to select and use tools and equipment
13.01.06	ability to recognize defects in coupling units such as cracks, out-of-adjustment and wear
13.01.07	ability to perform sensory inspections
13.01.08	ability to adjust components

Sub-task 13.02 Maintains landing gear.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

13.02.01	knowledge of types of landing gear
13.02.02	knowledge of manufacturers' specifications
13.02.03	knowledge of the operation of landing gear

13.02.04	knowledge of components of landing gears such as crank handles, sand shoes and cross shafts
13.02.05	knowledge of structures associated with landing gears such as wing plates, supporting structures and braces
13.02.06	ability to select and use tools and equipment
13.02.07	ability to recognize defects in landing gear such as cracked mounting brackets, worn bearings and worn gears
13.02.08	ability to perform sensory inspections
13.02.09	ability to adjust components

Sub-task
13.03 **Repairs coupling units.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

13.03.01	knowledge of types of coupling units
13.03.02	knowledge of manufacturers' specifications
13.03.03	knowledge of operation of coupling units
13.03.04	knowledge of components of coupling units such as fifth-wheels, slide tracks, safety chains and pintle-hooks
13.03.05	knowledge of components that can be repaired, replaced or adjusted
13.03.06	ability to select and use tools and equipment
13.03.07	ability to remove components
13.03.08	ability to repair components to manufacturers' specifications
13.03.09	ability to replace or reinstall components
13.03.10	ability to adjust components

Sub-task
13.04 **Repairs landing gear.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

13.04.01	knowledge of types of landing gear
13.04.02	knowledge of manufacturers' specifications
13.04.03	knowledge of operation of landing gear
13.04.04	knowledge of components of landing gear such as crank handles, sand shoes and cross shafts
13.04.05	knowledge of structures associated with landing gear such as wing plates, supporting structures and braces
13.04.06	knowledge of components that can be repaired, replaced or adjusted
13.04.07	ability to select and use tools and equipment
13.04.08	ability to remove components
13.04.09	ability to repair components to manufacturers' specifications
13.04.10	ability to replace or reinstall components
13.04.11	ability to adjust components

Sub-task
13.05 **Verifies servicing of coupling units.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

13.05.01	knowledge of types of coupling units
13.05.02	knowledge of manufacturers' specifications
13.05.03	knowledge of operation of coupling units
13.05.04	knowledge of components of coupling units such as fifth-wheels, slide tracks, safety chains and pintle-hooks
13.05.05	ability to select and use tools and equipment
13.05.06	ability to operate and test coupling units
13.05.07	ability to adjust components

Sub-task

13.06 **Verifies servicing of landing gear.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

13.06.01	knowledge of types of landing gear
13.06.02	knowledge of manufacturers' specifications
13.06.03	knowledge of operation of landing gear
13.06.04	knowledge of components of landing gear such as crank handles, sand shoes and cross shafts
13.06.05	knowledge of structures associated with landing gear such as wing plates, supporting structures and braces
13.06.06	ability to select and use tools and equipment
13.06.07	ability to operate and test landing gear
13.06.08	ability to adjust components

BLOCK F ELECTRICAL AND HYDRAULIC SYSTEMS, AND TRAILER-MOUNTED ACCESSORIES

Context

Lighting is designed for vehicle visibility and safe on-road operation.

Hydraulic systems are installed to add accessory features on trailers. They are used to simplify the transfer of power smoothly from one system to another.

Trailer-mounted accessories are installed for convenience of desired functions.

In this analysis, service includes repair, replacement, rebuild, adjustment and general maintenance

Trends

There is a wide variety of trailer-mounted accessories to extend service intervals. Some accessories are being designed to improve safety.

Hydraulic systems are becoming more advanced with the introduction of additional electronics.

The use of global positioning system (GPS) is becoming widely used in the industry to track units.

Related Components (including, but not limited to)

Electrical systems: lighting, wiring, connections.

Hydraulic systems: pumps, automatic greasing system, lift cylinders, walking floors, lift decks, power lift gates, valves, sensors, cylinders, blowers, hoses, controls.

Accessories: tire carriers, chain holders, storage boxes, tarping systems, pumps, hydro packs, lift cylinders, winches, power lift gates.

Tools and Equipment

See Appendix A.

Task 14 Diagnoses lighting systems.

Sub-task 14.01 Diagnoses lights.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

14.01.01	knowledge of types of lights such as light emitting diodes (LEDs) and incandescent
14.01.02	knowledge of components such as marker, signal and warning lights
14.01.03	knowledge of manufacturers' specifications
14.01.04	knowledge of reflectors and reflective tape
14.01.05	knowledge of current draw and resistance
14.01.06	ability to select and use tools and equipment
14.01.07	ability to visually inspect lights
14.01.08	ability to identify problems with lights

Sub-task 14.02 Diagnoses wiring and connections.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

14.02.01	knowledge of types and gauges of wiring
14.02.02	knowledge of types of connections such as vapour-proof and explosion-proof
14.02.03	knowledge of components such as circuit breakers, switches and conduits
14.02.04	knowledge of manufacturers' specifications
14.02.05	knowledge of current draw and resistance
14.02.06	ability to select and use tools and equipment
14.02.07	ability to visually inspect wiring and connections
14.02.08	ability to identify problems with wiring and connections

Task 15 Diagnoses hydraulic systems.

Sub-task 15.01 Diagnoses self-contained hydraulic systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

15.01.01	knowledge of types of self-contained hydraulic systems such as detachable float trailers, power lift gates and dock leveling systems
15.01.02	knowledge of self-contained hydraulic system components such as valves, sensors, cylinders, hoses and controls
15.01.03	knowledge of operation of self-contained hydraulic systems
15.01.04	knowledge of manufacturers' specifications
15.01.05	knowledge of component functions
15.01.06	knowledge of power sources such as air, electrical and engine-driven
15.01.07	ability to select and use tools and equipment such as flow and pressure gauges
15.01.08	ability to perform sensory inspections
15.01.09	ability to identify problems with self-contained hydraulic system components

Sub-task 15.02 Diagnoses auxiliary-powered hydraulic systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

15.02.01	knowledge of types of auxiliary-powered hydraulic systems such as dump trailers, walking floors and refuse trailers
15.02.02	knowledge of auxiliary-powered hydraulic system components such as valves, sensors, cylinders, hoses and controls
15.02.03	knowledge of operation of auxiliary-powered hydraulic systems
15.02.04	knowledge of manufacturers' specifications

15.02.05	knowledge of component functions
15.02.06	ability to select and use tools and equipment such as flow and pressure gauges
15.02.07	ability to perform sensory inspections
15.02.08	ability to identify problems with auxiliary-powered hydraulic system components

Task 16 Diagnoses trailer-mounted systems and accessories.

Sub-task 16.01 Diagnoses trailer-mounted systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

16.01.01	knowledge of trailer-mounted systems such as automatic lubrication systems, moisture ejection systems and load containment systems
16.01.02	knowledge of trailer-mounted system components such as pressure regulators, sensors, cylinders, hoses and controls
16.01.03	knowledge of operation of trailer-mounted systems
16.01.04	knowledge of manufacturers' specifications
16.01.05	knowledge of component functions
16.01.06	ability to select and use tools and equipment such as pressure gauges and regulators
16.01.07	ability to perform sensory inspections
16.01.08	ability to identify problems with trailer-mounted system components

Sub-task 16.02 Diagnoses trailer-mounted accessories.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

16.02.01	knowledge of trailer-mounted accessories such as tire carriers, chain holders, storage boxes and safety devices
16.02.02	knowledge of operation of trailer-mounted accessories
16.02.03	knowledge of manufacturers' specifications
16.02.04	knowledge of component functions
16.02.05	ability to select and use tools and equipment
16.02.06	ability to perform sensory inspections
16.02.07	ability to identify problems with trailer-mounted accessories components

Task 17 Services lighting systems.

Sub-task 17.01 Maintains lighting systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

17.01.01	knowledge of manufacturers' specifications
17.01.02	knowledge of maintenance procedures
17.01.03	knowledge of reflectors and reflective tape
17.01.04	ability to select and use tools and equipment
17.01.05	ability to perform sensory inspection
17.01.06	ability to select and use anticorrosive products

Sub-task 17.02 Repairs lighting systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

17.02.01	knowledge of types of lights such as LED and incandescent
17.02.02	knowledge of types and gauges of wiring and connections
17.02.03	knowledge of component functions
17.02.04	knowledge of manufacturers' specifications
17.02.05	knowledge of jurisdictional regulations regarding light locations
17.02.06	knowledge of reflectors and reflective tape locations
17.02.07	knowledge of component replacement procedures
17.02.08	knowledge of lights that can be repaired or replaced
17.02.09	knowledge of wiring and connections that can be repaired or replaced
17.02.10	ability to select and use tools and equipment
17.02.11	ability to remove components
17.02.12	ability to repair components such as sockets, harnesses, receptacles and connections
17.02.13	ability to replace or reinstall components such as bulbs, lenses and receptacles

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Sub-task
17.03 **Verifies servicing of lighting systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

17.03.01	knowledge of operation of lighting systems
17.03.02	knowledge of manufacturers' specifications
17.03.03	ability to select and use diagnostic equipment
17.03.04	ability to operate and test unit
17.03.05	ability to perform sensory inspections

Task 18 Services hydraulic systems.

Sub-task 18.01 Maintains hydraulic systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

18.01.01	knowledge of manufacturers' specifications
18.01.02	knowledge of maintenance procedures
18.01.03	ability to select and use tools and equipment
18.01.04	ability to perform sensory inspections
18.01.05	ability to select and use fluids
18.01.06	ability to operate and test systems
18.01.07	ability to flush and service filtering systems

Sub-task 18.02 Repairs hydraulic systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

18.02.01	knowledge of hydraulic system components such as valves, sensors, cylinders, hoses, controls and motors
18.02.02	knowledge of component functions
18.02.03	knowledge of manufacturers' specifications
18.02.04	knowledge of component replacement procedures
18.02.05	knowledge of hydraulic components that can be repaired, replaced or adjusted
18.02.06	ability to select and use tools and equipment such as measuring equipment, pressure gauges and flow meters
18.02.07	ability to remove components
18.02.08	ability to repair hydraulic components to manufacturers' specifications

18.02.09	ability to replace or reinstall hydraulic components
18.02.10	ability to bleed system
18.02.11	ability to adjust components such as pressure relief valves and flow control valves

Sub-task
18.03 **Verifies servicing of hydraulic systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

18.03.01	knowledge of operation of hydraulic systems
18.03.02	knowledge of manufacturers' specifications
18.03.03	ability to select and use diagnostic equipment
18.03.04	ability to operate and test unit
18.03.05	ability to perform sensory inspections

Task 19 Services trailer-mounted systems and accessories.

Sub-task
19.01 **Installs trailer-mounted systems and accessories.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

19.01.01	knowledge of types of trailer-mounted systems and accessories
19.01.02	knowledge of manufacturers' specifications
19.01.03	knowledge of installation procedures
19.01.04	knowledge of operation of systems and accessories
19.01.05	knowledge of mounting devices and fasteners
19.01.06	knowledge of mounting location

19.01.07	ability to select and use tools and equipment
19.01.08	ability to cycle and test systems

Sub-task
19.02 **Maintains trailer-mounted systems and accessories.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

19.02.01	knowledge of manufacturers' specifications
19.02.02	knowledge of maintenance procedures
19.02.03	knowledge of operation of systems and accessories
19.02.04	ability to select and use tools and equipment
19.02.05	ability to perform sensory inspections
19.02.06	ability to operate and test systems

Sub-task
19.03 **Repairs trailer-mounted systems and accessories.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

19.03.01	knowledge of trailer-mounted system components
19.03.02	knowledge of component functions
19.03.03	knowledge of manufacturers' specifications
19.03.04	knowledge of component replacement procedures
19.03.05	knowledge of trailer-mounted system and accessory components that can be repaired, replaced or adjusted
19.03.06	ability to select and use tools and equipment
19.03.07	ability to remove components
19.03.08	ability to repair components to manufacturers' specifications
19.03.09	ability to replace or reinstall components
19.03.10	ability to adjust components

Sub-task

19.04 **Verifies servicing of trailer-mounted systems and accessories.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

19.04.01	knowledge of operation of trailer-mounted systems and accessories
19.04.02	knowledge of manufacturers' specifications
19.04.03	ability to select and use diagnostic equipment
19.04.04	ability to perform sensory inspections
19.04.05	ability to verify mounting location and fasteners
19.04.06	ability to operate and test unit

BLOCK G HEATING AND REFRIGERATION UNITS

Context

Transport trailer technicians work in a limited fashion on heating and refrigeration units, due to specialized licensing and training requirements. These units regulate and monitor the temperature of trailer bodies, allowing for the transportation of perishables and temperature-sensitive cargos.

In this analysis, service includes repair, replacement, rebuild, adjustment and general maintenance.

Trends

These units are becoming more sophisticated, requiring an increased level of training to diagnose, maintain and repair. Features such as load-monitoring and integral communication controls between power units and trailers are increasingly available.

Environmental considerations have sparked the increased use of environmentally-friendly refrigerants and more stringent exhaust emission standards. The units are also becoming more efficient, requiring less run-time.

Multi-temp trailers are becoming more popular, allowing a greater variety of temperature-sensitive cargo to be transported in the same unit.

Related Components (including, but not limited to)

Structure, controls, fuel tanks, batteries, wires, hoses, belts, shrouds, fasteners.

Tools and Equipment

See Appendix A.

Task 20 Diagnoses heating and refrigeration units.

Sub-task 20.01 **Diagnoses heating units.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

20.01.01	knowledge of jurisdictional regulations
20.01.02	knowledge of types of heating units
20.01.03	knowledge of fuel systems such as diesel, propane and natural gas
20.01.04	knowledge of components of heating units such as batteries, wires and fuel tanks
20.01.05	knowledge of mounting structure, fasteners and reinforcements
20.01.06	knowledge of operation of heating units
20.01.07	knowledge of fluid levels such as antifreeze, motor oil and fuel
20.01.08	knowledge of manufacturers' specifications
20.01.09	knowledge of hazards associated with heating units and fuel systems
20.01.10	ability to select and use tools and equipment
20.01.11	ability to recognize worn, damaged or defective components such as corrosion, cracks and broken fasteners
20.01.12	ability to perform sensory inspections

Sub-task 20.02 **Diagnoses refrigeration units.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

20.02.01	knowledge of jurisdictional regulations
20.02.02	knowledge of types of refrigeration units
20.02.03	knowledge of power supply such as electric, diesel, propane and natural gas
20.02.04	knowledge of components of refrigeration units such as batteries, compressors and fuel tanks
20.02.05	knowledge of mounting structure, fasteners and reinforcements
20.02.06	knowledge of operation of refrigeration units
20.02.07	knowledge of fluid levels such as antifreeze, motor oil and fuel
20.02.08	knowledge of manufacturers' specifications
20.02.09	knowledge of hazards associated with refrigeration units and fuel systems
20.02.10	ability to select and use tools and equipment

20.02.11	ability to recognize worn, damaged or defective components such as corrosion, cracks and broken fasteners
20.02.12	ability to perform sensory inspections

Task 21 Services heating and refrigeration units.

Sub-task 21.01 Maintains heating units.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

21.01.01	knowledge of jurisdictional regulations
21.01.02	knowledge of types of heating units
21.01.03	knowledge of fuel systems such as diesel, propane and natural gas
21.01.04	knowledge of components of heating units such as batteries, wires and fuel tanks
21.01.05	knowledge of mounting structure, fasteners and reinforcements
21.01.06	knowledge of operation of heating units
21.01.07	knowledge of fluid levels such as antifreeze, motor oil and fuel
21.01.08	knowledge of manufacturers' specifications
21.01.09	knowledge of hazards associated with heating units and fuel systems
21.01.10	ability to select and use tools and equipment
21.01.11	ability to recognize worn, damaged or defective components such as corrosion, cracks and broken fasteners
21.01.12	ability to perform sensory inspections
21.01.13	ability to adjust components such as belts and battery connections

Sub-task 21.02 Maintains refrigeration units.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

21.02.01	knowledge of jurisdictional regulations
21.02.02	knowledge of types of refrigeration units
21.02.03	knowledge of power supply such as electric, diesel, propane and natural gas
21.02.04	knowledge of components of refrigeration units such as batteries, compressors and fuel tanks
21.02.05	knowledge of mounting structure, fasteners and reinforcements
21.02.06	knowledge of operation of refrigeration units
21.02.07	knowledge of fluid levels such as antifreeze, motor oil and fuel
21.02.08	knowledge of manufacturers' specifications
21.02.09	knowledge of hazards associated with refrigeration units and fuel systems
21.02.10	ability to select and use tools and equipment
21.02.11	ability to recognize worn, damaged or defective components such as corrosion, cracks and broken fasteners
21.02.12	ability to perform sensory inspections
21.02.13	ability to adjust components such as belts and shrouds

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Sub-task
21.03 **Repairs heating units.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

21.03.01	knowledge of jurisdictional regulations
21.03.02	knowledge of types of heating units
21.03.03	knowledge of fuel systems such as diesel, propane and natural gas
21.03.04	knowledge of components of heating units such as batteries, wires and fuel tanks
21.03.05	knowledge of mounting structure, fasteners and reinforcements
21.03.06	knowledge of operation of heating units
21.03.07	knowledge of manufacturers' specifications
21.03.08	knowledge of hazards associated with heating units and fuel systems
21.03.09	ability to select and use tools and equipment
21.03.10	ability to remove heating units

21.03.11	ability to repair heating unit components
21.03.12	ability to replace or reinstall heating units and components
21.03.13	ability to adjust heating unit controls

Sub-task
21.04 **Repairs refrigeration units.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

21.04.01	knowledge of jurisdictional regulations
21.04.02	knowledge of types of refrigeration units
21.04.03	knowledge of power supply such as electric, diesel, propane and natural gas
21.04.04	knowledge of components of refrigeration units such as batteries, compressors and fuel tanks
21.04.05	knowledge of mounting structure, fasteners and reinforcements
21.04.06	knowledge of operation of refrigeration units
21.04.07	knowledge of manufacturers' specifications
21.04.08	knowledge of hazards associated with refrigeration units and fuel systems
21.04.09	ability to select and use tools and equipment
21.04.10	ability to remove refrigeration units
21.04.11	ability to repair refrigeration unit components
21.04.12	ability to replace or reinstall refrigeration units and components
21.04.13	ability to adjust refrigeration unit controls

Sub-task
21.05 **Verifies servicing of heating and refrigeration units.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	yes	ND	yes	yes	ND	ND	yes	ND	NV	ND

Supporting Knowledge & Abilities

21.05.01	knowledge of types of heating and refrigeration units
21.05.02	knowledge of power supply such as electric, diesel, propane and natural gas

21.05.03	knowledge of components of heating and refrigeration units
21.05.04	knowledge of mounting structure, fasteners and reinforcements
21.05.05	knowledge of operation of heating and refrigeration units
21.05.06	knowledge of manufacturers' specifications
21.05.07	knowledge of hazards associated with heating and refrigeration units, and fuel systems such as over-pressurization and auto-starts
21.05.08	ability to select and use testing tools and equipment such as thermometers, torque wrenches and belt-tension gauges
21.05.09	ability to adjust heating and refrigeration unit controls
21.05.10	ability to perform sensory inspections
21.05.11	ability to operate and test heating and refrigeration units

APPENDICES

APPENDIX A TOOLS AND EQUIPMENT

Hand Tools

bushing installer
caulking gun
chisels
clamps
crimping tool
files
flaring tool
flashlight
grease gun
hack saw
hammer
magnet
picks
pliers
pry bars
pullers
punches
ratchets
rivet gun
scrapers
screwdrivers
seal driver
shears
side cutters
snips
sockets
spreaders
stud remover
torque multiplier
torque wrench
trouble light
trowel
tube cutters
utility knife
wire brush
wire cutters
wire strippers
wrenches

Electric, Pneumatic and Hydraulic Tools

air cutoff tools
air hammer
air drill
air grinders
air ratchet
air rivet gun
angle grinder
blow gun
crimpers
die grinders
drills and bits
electric saws
heat guns
hole saws
nibblers
portable power tools
portable presses
pressure washer
rivet gun
sanders
vacuum cleaner

Lifting, Access and Staging Tools

axle stands
blocking
brake drum dolly
chain falls
come-alongs
fork lift
hoists
jacks
mobile cranes
overhead cranes
portable stairs
scaffolds
scissor lift
ladders
wheel dolly
wheel chocks

Diagnostic and Measuring Tools

5th wheel adjustment tool
air brake analyzer
battery load tester
brake drum gauges
calculator
calipers
chalk line
circuit tester
computer
dial indicator
flow meter
level
light tester
micrometers
multimeter
plumb bob
portable diagnostic unit
pressure gauge
ruler
spring scale
square
tape measure
tension scale
trailer alignment equipment
voltmeter

Cutting and Welding Tools

arc-air gouging tool
arc welder
gas metal arc welder (GMAW)
gas tungsten arc welder (GTAW)
oxy-acetylene torch
plasma cutter
propane torch
soldering gun

Stationary Tools

band saws
bench grinders
chop saw
brakes and shears
drill press
drum lathe
hydraulic press
jigs
spring press
table saws

Personal Protective Equipment and Safety Equipment

eye protection
eye wash station
face shields
fall arrest equipment
fire blanket
fire extinguishers
fire hoses
first aid station
gloves
hearing protection
personal protective clothing
respirators
safety boots
safety cage
safety cones
safety signs and tape
self-contained breathing apparatus
shields and guards
showers
ventilation equipment
welder's helmet
welding curtains

APPENDIX B GLOSSARY

accessories	components for the vehicle which enhance the operation or extend longevity
access equipment	equipment used to facilitate or gain access to an area to be repaired
air brake systems	system controlled or operated by directional flow of compressed air
antifreeze	a liquid coolant which allows for heat disposition
antilock brake system (ABS)	electronically controlled system to prevent wheel lockup
brake foundation systems	brake system containing a friction material controllably forced against a rotating steel component to slow or stop a vehicle
chassis	attach the trailer body to the suspension; they include frames, sub-frames and slider locking mechanisms; they distribute and carry the weight of the load to the suspension system.
combination vehicles	two or more trailers attached by coupling units
coupling units	device used to connect one or more trailers together
diagnose	tasks involved in inspecting, testing and determining faults in trailer systems and components
electric brake system	system operated by a controlled voltage signal
electrical systems	lighting, wiring and accessory circuits with or without electronic control unit (ECU)
electronic control unit (ECU)	module which monitors and controls functions of a vehicle
frame	base structure which the rest of the trailer is built on
heating and refrigeration units	components which are used to keep a load's temperature constant through heating or cooling

hydraulic brake system	system controlled or operated by hydraulic fluid pressure
hydraulic system	system which uses fluid under pressure to transmit power through tubes or hoses to operate different components on a trailer
landing gear	components which are used to support the weight of the trailer when disconnected from the towing unit
multi-temp trailer	trailer that can maintain different temperatures in two or more compartments of the trailer
power unit	motorized towing unit
rubber block suspension system	type of suspension system using rubber blocks to support the load
sensory inspection	diagnosing or inspecting using sight, sound, smell or feel
service	activities which include repair, replacement, rebuild, adjustment and general maintenance of trailers and components
slider	assembly to allow movement of a sub-frame
slider locking mechanism	locking mechanism to secure the sub-frame to the chassis
spring suspension system	suspension system using spring packs to support the load
staging equipment	support and stabilize equipment to facilitate repair
sub-frame	component to which the axles and suspension systems are attached
suspension	components which absorb road surface irregularities to smooth vehicle ride; it is designed to permit controlled wheel movement over irregular surfaces; basic types include spring, air and rubber block
towing unit	unit that tows the trailer; may be a power unit or a trailer
wheel end assembly	rotating parts at the end of the axles; includes hubs, bearings, seals, drums, rims and tires

APPENDIX C

ACRONYMS

ABS	antilock brake system
ECU	electronic control unit
FRP	fiberglass reinforced panel
GMAW	gas metal arc welding
GPS	global positioning system
GTAW	gas tungsten arc welding
LED	light emitting diode
OAW	oxy-acetylene welding
PPE	personal protective equipment
SI	International System of Units
TDG	Transport of Dangerous Goods
VIN	vehicle identification number
WHMIS	Workplace Hazardous Materials Information System

APPENDIX D BLOCK AND TASK WEIGHTING

BLOCK A OCCUPATIONAL SKILLS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	NV	5	5	6	ND	3	9	ND	ND	5	ND	NV	ND	6%

Task 1 Uses and maintains tools and equipment.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	35	40	27	ND	33	40	ND	ND	10	ND	NV	ND	31%

Task 2 Organizes work.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	20	20	27	ND	67	30	ND	ND	50	ND	NV	ND	36%

Task 3 Performs routine trade activities.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	45	40	46	ND	0	30	ND	ND	40	ND	NV	ND	33%

BLOCK B SUSPENSION SYSTEMS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	NV	15	25	14	ND	20	19	ND	ND	20	ND	NV	ND	19%

Task 4 Diagnoses suspension systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	50	40	33	ND	60	60	ND	ND	40	ND	NV	ND	47%

Task 5 Services suspension systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	50	60	67	ND	40	40	ND	ND	60	ND	NV	ND	53%

BLOCK C BRAKE SYSTEMS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	NV	25	25	22	ND	20	27	ND	ND	20	ND	NV	ND	23%

Task 6 Diagnoses brake systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	60	60	38	ND	75	75	ND	ND	55	ND	NV	ND	60%

Task 7 Services brake systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	40	40	62	ND	25	25	ND	ND	45	ND	NV	ND	40%

BLOCK D AXLES AND WHEEL END ASSEMBLIES

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	NV	20	25	16	ND	20	17	ND	ND	15	ND	NV	ND	19%

Task 8 Diagnoses axles and wheel end assemblies.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	50	50	32	ND	50	65	ND	ND	60	ND	NV	ND	51%

Task 9 Services axles and wheel end assemblies.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	50	50	68	ND	50	35	ND	ND	40	ND	NV	ND	49%

BLOCK E TRAILER CHASSIS, BODIES AND COUPLING UNITS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	NV	15	10	19	ND	20	20	ND	ND	20	ND	NV	ND	17%

Task 10 Diagnoses trailer chassis (frames, sub-frames, slider locking mechanisms) and trailer bodies.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	35	45	22	ND	15	35	ND	ND	35	ND	NV	ND	31%

Task 11 Diagnoses coupling units and landing gear.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	23	35	25	ND	10	25	ND	ND	20	ND	NV	ND	23%

Task 12 Services trailer chassis (frames, sub-frames, slider locking mechanisms) and trailer bodies.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	27	10	25	ND	50	25	ND	ND	35	ND	NV	ND	29%

Task 13 Services coupling units and landing gear.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	15	10	28	ND	25	15	ND	ND	10	ND	NV	ND	17%

BLOCK F ELECTRICAL AND HYDRAULIC SYSTEMS, AND TRAILER-MOUNTED ACCESSORIES

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	NV	10	5	18	ND	15	5	ND	ND	10	ND	NV	ND	10%

Task 14 Diagnoses lighting systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	24	30	17	ND	33	30	ND	ND	25	ND	NV	ND	27%

Task 15 Diagnoses hydraulic systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	17	15	12	ND	13	15	ND	ND	17	ND	NV	ND	15%

Task 16 Diagnoses trailer-mounted systems and accessories.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	13	15	17	ND	7	10	ND	ND	10	ND	NV	ND	12%

Task 17 Services lighting systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	20	20	20	ND	27	15	ND	ND	8	ND	NV	ND	18%

Task 18 Services hydraulic systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	16	10	18	ND	13	15	ND	ND	30	ND	NV	ND	17%

Task 19 Services trailer-mounted systems and accessories.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	10	10	16	ND	7	15	ND	ND	10	ND	NV	ND	11%

BLOCK G HEATING AND REFRIGERATION UNITS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	NV	10	5	5	ND	2	3	ND	ND	10	ND	NV	ND	6%

Task 20 Diagnoses heating and refrigeration units.

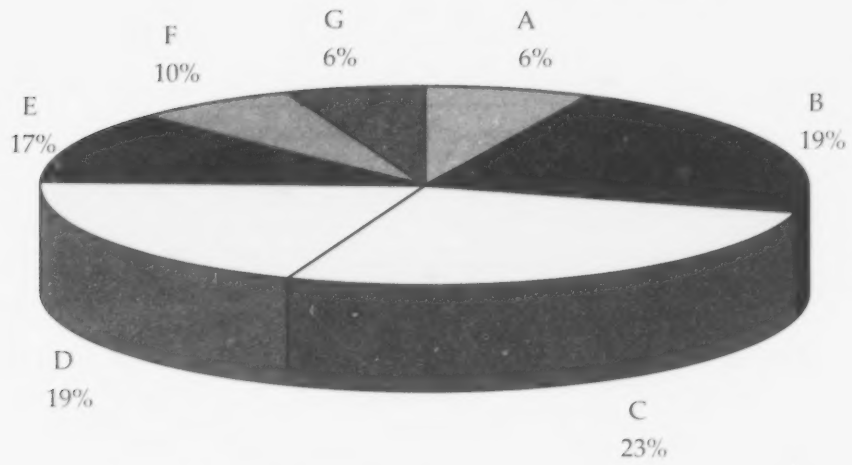
	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	50	60	50	ND	50	70	ND	ND	50	ND	NV	ND	55%

Task 21 Services heating and refrigeration units.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	50	40	50	ND	50	30	ND	ND	50	ND	NV	ND	45%

APPENDIX E

PIE CHART*



TITLES OF BLOCKS

BLOCK A	Occupational Skills	BLOCK E	Trailer Chassis, Bodies and Coupling Units
BLOCK B	Suspension Systems	BLOCK F	Electrical and Hydraulic Systems, and Trailer-Mounted Accessories
BLOCK C	Brake Systems	BLOCK G	Heating and Refrigeration Units
BLOCK D	Axles and Wheel End Assemblies		

* Average percentage of the total number of questions on an interprovincial examination, assigned to assess each block of the analysis, as derived from the collective input from workers within the occupation from all areas of Canada. Interprovincial examinations typically have from 100 to 150 multiple-choice questions.

APPENDIX F

TASK PROFILE CHART — Transport Trailer Technician

	BLOCKS	TASKS	SUB-TASKS				
A	OCCUPATIONAL SKILLS	1. Uses and maintains tools and equipment.	1.01 Maintains hand tools.	1.02 Maintains electric and pneumatic tools.	1.03 Maintains measuring, testing and diagnostic equipment.	1.04 Uses hoisting and lifting equipment.	1.05 Uses staging and access equipment.
			1.06 Uses personal protective equipment (PPE) and safety equipment.	1.07 Uses welding equipment.	1.08 Uses gas and electric cutting equipment.		
		2. Organizes work.	2.01 Uses documentation and reference materials.	2.02 Communicates with others.	2.03 Maintains safe work environment.		
		3. Performs routine trade activities.	3.01 Maintains fluids and lubricants.	3.02 Lubricates parts and components.	3.03 Cleans parts and components.	3.04 Uses fasteners, sealants, adhesives and gaskets.	3.05 Installs hoses, tubing and fittings.
B	SUSPENSION SYSTEMS	4. Diagnoses suspension systems.	4.01 Diagnoses air suspension systems.	4.02 Diagnoses spring suspension systems.	4.03 Diagnoses rubber block suspension systems.		
		5. Services suspension systems.	5.01 Maintains suspension systems.	5.02 Repairs air suspension systems.	5.03 Repairs spring suspension systems.	5.04 Repairs rubber block suspension systems.	5.05 Verifies servicing of suspension systems.
C	BRAKE SYSTEMS	6. Diagnoses brake systems.	6.01 Diagnoses disc brake foundation systems.	6.02 Diagnoses drum brake foundation systems.	6.03 Diagnoses air brake systems.	6.04 Diagnoses hydraulic brake systems.	6.05 Diagnoses electric brake systems.
			6.06 Diagnoses antilock brake systems (ABSs).				
		7. Services brake systems.	7.01 Maintains brake systems.	7.02 Repairs disc brake foundation systems.	7.03 Repairs drum brake foundation systems.	7.04 Repairs air brake systems.	7.05 Repairs hydraulic brake systems.

BLOCKS	TASKS	SUB-TASKS				
		7.06 Repairs electric brake systems.	7.07 Repairs antilock brake systems (ABSs).	7.08 Verifies servicing of brake systems.		
D AXLES AND WHEEL END ASSEMBLIES	8. Diagnoses axles and wheel end assemblies.	8.01 Diagnoses axles.	8.02 Diagnoses hubs.	8.03 Diagnoses self-steering and lift axles.	8.04 Diagnoses tires and rims.	
	9. Services axles and wheel end assemblies.	9.01 Maintains axles and wheel end assemblies.	9.02 Repairs axles and hubs.	9.03 Repairs self-steering and lift axles.	9.04 Replaces tires and rims.	9.05 Repairs tires. **(NOT COMMON CORE)**
		9.06 Verifies servicing of axles and wheel end assemblies.				
E TRAILER CHASSIS, BODIES AND COUPLING UNITS	10. Diagnoses trailer chassis (frames, sub-frames, slider locking mechanisms) and trailer bodies.	10.01 Diagnoses trailer chassis (frames, sub-frames and slider locking mechanisms).	10.02 Diagnoses trailer bodies.			
	11. Diagnoses coupling units and landing gear.	11.01 Diagnoses coupling units.	11.02 Diagnoses landing gear.			
	12. Services trailer chassis (frames, sub-frames, slider locking mechanisms) and trailer bodies.	12.01 Maintains trailer chassis (frames, sub-frames, slider locking mechanisms).	12.02 Maintains trailer bodies.	12.03 Repairs trailer chassis (frames, sub-frames and slider locking mechanisms).	12.04 Repairs trailer bodies.	12.05 Verifies servicing of trailer chassis (frames, sub-frames and slider locking mechanisms).
		12.06 Verifies servicing of trailer bodies.				
	13. Services coupling units and landing gear.	13.01 Maintains coupling units.	13.02 Maintains landing gear.	13.03 Repairs coupling units.	13.04 Repairs landing gear.	13.05 Verifies servicing of coupling units.
		13.06 Verifies servicing of landing gear.				

BLOCKS	TASKS	SUB-TASKS				
F ELECTRICAL AND HYDRAULIC SYSTEMS, AND TRAILER-MOUNTED ACCESSORIES	14. Diagnoses lighting systems.	14.01 Diagnoses lights.	14.02 Diagnoses wiring and connections.			
	15. Diagnoses hydraulic systems.	15.01 Diagnoses self-contained hydraulic systems.	15.02 Diagnoses auxiliary-powered hydraulic systems.			
	16. Diagnoses trailer-mounted systems and accessories.	16.01 Diagnoses trailer-mounted systems.	16.02 Diagnoses trailer-mounted accessories.			
	17. Services lighting systems.	17.01 Maintains lighting systems.	17.02 Repairs lighting systems.	17.03 Verifies servicing of lighting systems.		
	18. Services hydraulic systems.	18.01 Maintains hydraulic systems.	18.02 Repairs hydraulic systems.	18.03 Verifies servicing of hydraulic systems.		
	19. Services trailer-mounted systems and accessories.	19.01 Installs trailer-mounted systems and accessories.	19.02 Maintains trailer-mounted systems and accessories.	19.03 Repairs trailer-mounted systems and accessories.	19.04 Verifies servicing of trailer-mounted systems and accessories.	
G HEATING AND REFRIGERATION UNITS	20. Diagnoses heating and refrigeration units.	20.01 Diagnoses heating units.	20.02 Diagnoses refrigeration units.			
	21. Services heating and refrigeration units.	21.01 Maintains heating units.	21.02 Maintains refrigeration units.	21.03 Repairs heating units.	21.04 Repairs refrigeration units.	21.05 Verifies servicing of heating and refrigeration units.